

THE
GEORGE WASHINGTON UNIVERSITY

NAVY GRADUATE COMPTROLLERSHIP PROGRAM

THE FUNCTIONS OF
CONTROL, REPORTING, AND ANALYSIS

By

William H. Ross
Commander, SC, USN

For

Dr. A. Rex Johnson

May, 1956

TABLE OF CONTENTS

	Page
PREFACE.	iii
 Chapter	
I. OBJECTIVES OF PROGRESS REPORTING AND ANALYSIS.	1
Progress Reporting Defined	
Management Objectives	
Reporting Principles	
Span of Progress Reporting	
Design for Progress Reporting	
Organization for Reporting and Control	
Responsibilities of Progress Reporting and Comptrollership	
II. REQUISITES FOR PROGRESS REPORTING AND ANALYSIS	7
The Objective	
The Elements of a Reporting System	
The Criteria for a Report	
The Classification of Reports	
Control Over Reports	
III. ANALYSIS AND INTERPRETATION.	18
The Objective	
Analysis Defined	
The Program for Analysis	
Objectives and Plans Analysis	
Planning Factor Analysis	
Program Analysis	
Cost Analysis	
Special Analytical Studies	
Interpretation	
Conclusions	
BIBLIOGRAPHY	33

PREFACE

During November 1953 the Secretary of the Navy issued an instruction concerning the establishment of comptroller organizations in Bureaus, Headquarters, Offices and Field Activities of the Navy and Marine Corps.¹ This instruction set forth functional organization charts and an elaboration of the duties to be performed by comptroller organizations.

In commenting on the role of comptrollership, the Secretary pointed out that most of the Comptroller functions were already being performed in varying degrees. However, under the concept of controllership, three new functional elements were being introduced:

- (1). Emphasizing the constructive aspects of the reporting, analysis and interpretative functions as distinct from the purely, recording function.
- (2). Improving budget formulation and execution through the collection and utilization of accounting and program data at all organizational levels.
- (3). Coordinating and integrating the several comptroller functions to provide concisely to the Commanding Officer the basic data essential for efficient, economical and effective management.²

The object of this paper is to examine the purpose and content of these new functions and to establish their role in the management process; to determine the requisites necessary for a sound system of reporting and analysis and to compare the analytical and interpretative functions as they are employed by industry and the Navy in the budgetary process.

¹Office of the Secretary of the Navy, "Establishment of Comptroller Organizations in Bureaus, Offices, Headquarters and Field Activities of the Navy and Marine Corps," SecNav Instruction 5400.4, 18 November, 1953, p. 1.

²Ibid.

For valuable help in gathering material on Navy systems and procedures, the writer is grateful to Commander W. B. Durant Jr. (SC) USN and Mr. R. C. Moot, both of the Office of the Comptroller, Bureau of Supplies and Accounts.

CHAPTER I

OBJECTIVES OF PROGRESS REPORTING AND ANALYSIS

Progress Reporting Defined.--Progress Reporting is defined as a means of measuring accomplishment against a chronological plan and focusing attention upon significant deviations. It is considered the keystone of management control, i.e., the means of making certain that what was done is in accordance with that intended. In the words of Henri Fayol it "consists in verifying whether everything occurs in conformity with the plans adopted, the instructions issued and the principles established. It has for object to point out weaknesses and errors in order to rectify them and prevent recurrence."¹

Management Objectives.--Progress reporting in business and in Navy pre-supposes the existence of organizational objectives and plans as the basis for effective management control. An organization, to achieve any degree of success, must establish the objectives or goals it desires to attain. It must look into the future and forecast the conditions and events that will influence or effect realization of these objectives. It must develop definite plans of action for each organizational element and for the organization as a whole expressed in terms of the objectives and conditions forecast. It must control its operations in accordance with the plans scheduled and to this end, it must appraise performance as the plan operated and initiate corrective action required.

¹Henri Fayol, General and Industrial Management (New York: Putnam Publishing Corporation, 1949), p. 107.

Reporting Principles.--To control operations in line with plans, progress reporting pre-supposes a set of reporting systems developed on sound underlying principles.

The first of these principles provides that progress reporting must reflect variations in performance from plan and point up the organizational element responsible. Urwick terms this the "Principle of Uniformity," i.e., "all figures and reports used for purposes of control must be in terms of the organization structure. No person's effort should be expressed in any figures which he is not in a position to influence."²

Progress reporting also pre-supposes the existence of standards. This is termed by Urwick as "The Principle of Comparison," i.e., "all figures and reports used for the purposes of control should be in terms of standards of performance required and where necessary of past performance."³ Reports which are set against a background of pre-planned performance indicate to management at once, when its objectives and plans are not being realized.

Progress reporting, to be effective, must also be based upon "the Exception Principle." Frederick W. Taylor describes this principle in the following words:

It is not an uncommon sight though a sad one, to see the manager of a large business fairly swamped at his desk with an ocean of letters and reports, on each of which he thinks he should put his initial or stamp. He feels that by having this mass of detail pass over his desk he is keeping in close touch with the entire business. The exception principle is the reverse of this. Under it the manager should receive only condensed, summarized and invariably comparative reports, covering, however, all of the elements entering into the management, and even these summaries should all be gone over by an assistant before they reach the manager, and have all of the exceptions to the past overages or to the standards pointed out,

²Urwick, The Elements of Administration (New York and London: Harper and Brothers Publishers, 1943), p. 107.

³Ibid.

...the
... ..
... ..

... ..
... ..
... ..
... ..
... ..
... ..
... ..

... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..

... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..
... ..

... ..
... ..
... ..

both the especially good and the especially bad exceptions, thus giving him in a few minutes a full view of progress which is being made, or the reverse, and leaving him free to consider the broader lines of policy"⁴

The fourth and final principle is "the Principle of Utility," i.e., "Figures and reports used for purposes of control vary in value directly with the appropriateness of the period covered to the end in view and to the time separating the end of the period covered from their use."⁵ Thus, for management to control, care must be exercised in determining whether reporting should be on a daily, weekly, monthly, or other basis and that submission dates are timely. Reports that are too long delayed or are made too infrequently lose validity and effectiveness.

Span of Progress Reporting.--Progress reporting, to be complete, must also relate physical accomplishment to the utilization of resources. It must relate total dollar costs and unit costs. It must relate costs in terms of manpower and material utilization and any other element entering into cost composition. It must also relate the effectiveness of facilities and equipment utilization. Finally, progress reporting must relate total program accomplishment and effectiveness to total program costs.

Progress reporting must, in addition, provide a factual basis for forecasting and developing plans for the period ahead. Urwick terms this "the most arresting single fact about modern ideas of administration--that control is a continuing activity. The various aspects which Fayol has analyzed, if arranged in order of time, make the segments of a complete circle. Forecasting leads to Planning. The next operation is Organizing, which issues in Co-ordi-

⁴Frederick W. Taylor, Shop Management (New York and London: Harper and Brothers Publishers, 1911), p. 126.

⁵Urwick, op. cit., p. 108.

nation. Then comes Command and, finally, Control, next to Forecasting again, and appropriately next to it, since much of the material thrown up by a modern system of Control is as valuable for looking forward as for reviewing the past."⁶

Design for Progress Reporting.--Progress reports must be designed for the individual responsible for the accomplishment of the job. Management plans are made effective through the delegation of authority and assignment of responsibility to the individuals directing the various elements of the organization. Management control is based on the knowledge of how well these responsibilities are being carried out--"the principle of uniformity." Hence, progress reporting must serve the individual manager and cover the specific segment of organization for which he is responsible. In so doing, progress reports must follow the structure of the organization, providing overall results in broad terms to the top level of management and becoming increasingly detailed as they move down the organization scale.

Organization for Reporting and Control.--Progress reporting is best done by a staff organization which can pull together objectively the necessary elements of plan, workload, manpower and cost. Lamperti and Thurston point out that "no company, small or otherwise, can exist without some form of planning, forecasting, accounting, statistics, reports, management research (special investigations), appraisal audits, internal control, organization and basic company policies."⁷ To perform these functions, Lamperti and Thurston recommend the establishment of a staff "control unit," which they describe in the following words:

⁶Urwick, op. cit., p. 102.

⁷F. A. Lamperti and J. B. Thurston, Internal Auditing for Management (New York: Prentice-Hall Inc., 1953), p. 93.

The Control Unit is new as a separate important top management tool. It is the latest step in the evolution of managerial controls. It is simply the gathering of all these activities into one coordinated unit under the supervision of a top executive. This places new emphasis on these functions, acknowledges their importance, and usually results in substantial economies in the costs of effecting proper control of the business. Duplication of effort, work at cross purposes, over-emphasis on the importance of one function at the expense of another are eliminated. Erroneous interpretations or lack of unity of purpose, which can happen unintentionally when two people examine the same situation independently, are eliminated. The whole flow and channeling of control data from source to directive action is coordinated under uniform guidance and without extraneous motion.⁸

This coordinated staff service is termed by the Secretary of the Navy to be Comptrollership. In defining this function, the Secretary specified that:

The Comptroller must provide technical guidance and direction to the conduct of specific fact-collective systems in the areas of budget formulation and execution, program analysis, accounting and progress reports and statistics. The fully coordinated staff service provided by the comptroller should relieve the commanding officer of much of the burden of detailed fact collection, coordination and analysis. When properly performed, comptrollership will enable the Commanding Officer to spend more of his time in the areas of policy formulation, decision, and program direction.⁹

Responsibilities of Progress Reporting and Comptrollership.--Progress reporting for management control must relate essential facts to each step of the executive process. It must state the objectives of the organization in quantitative and qualitative terms and report the degree of attainment. It must state the planning factors and report operating experience to validate or cause modifications of forecasts and plans. It must state operating plans and report progress against plan. Finally, it must note deviations from plans as a basis for management action. In all of these activities, progress reporting, together with analysis and interpretation, supplies management

⁸Ibid., p. 95.

⁹SecNavInst. 5400.4., op. cit., p. 3.

the information needed for evaluation and decision.

In discussing the reporting function as it pertains to a business enterprise, Andersen in his book Practical Controllershship points out that:

For maximum effectiveness, reporting for management must be expressed in terms of dollars and it is a function of comptrollership to convert into dollars and to record and summarize the plans and actual results of all departments of the business. Comptrollership summarizes plans by means of the budget, and the facts of actual performance by means of the financial and operating statements and supplementary reports, and these are the two principal tools of management control.¹⁰

In presenting the concept of Comptrollership to the Naval Establishment, the Secretary of the Navy also recognized the importance of budgeting and progress reporting in the management process. In setting forth the duties to be performed by a Navy Comptroller organization, the Secretary provided that the Comptroller will:

Measure and analyze performance, program status and trends against the approved programs and budget plans and schedules, and report the results of operations to responsible levels of Command. The system prescribed provides for the collection of data that will permit appraisal and detection of variances from the operating and budget plan so that management can take the appropriate action. This function of comptrollership is considered an extremely important staff service to the Commanding Officer who has the responsibility for decision.¹¹

Thus, the functions of progress reporting and analysis are clearly recognized in both business and Navy as essential tools of management control.

¹⁰David R. Andersen, Practical Controllershship (Chicago: Richard D. Irwin Inc., 1949), p. 61.

¹¹SecNavInst. 5400.4., op. cit., p. 4.

CHAPTER II

REQUISITES FOR PROGRESS REPORTING AND ANALYSIS

The Objective.--"The Manager must know all that goes on, either from personal contact, as in the case of the small unit; indirectly, as in the large one. Verbal and written reports are the complements to supervision and control which he must know how to use."¹

The objectives of a business or of the Navy are accomplished through their respective operating plans. It is at the point during which operating plans are developed and translated into budgets that progress reporting first becomes important to management. Reporting systems provide an actual account of past operations as a factual basis for forecasting and developing plans for the period ahead. Once the operating plan and budget is complete and placed into effect, progress reporting then becomes important as the basic vehicle for management control. Unless management is furnished the information by which it can evaluate the progress of its plans, within the framework of the budget, it can have only a vague idea of the degree to which the objectives are being accomplished and the plans carried out.

The Elements of a Reporting System.--The Accounting Plan.--The development of an accounting plan for the entity is a responsibility of the Comptroller and is of fundamental importance in constructing a sound reporting system. It requires a thorough knowledge of operating procedures and the

¹Fayol, op. cit., p. 102.

organizational structure of the entity and must be designed to reflect the reporting needs of the various echelons of management.

In developing the accounting plan, the accounts must be set up in a manner which will clearly describe the various cost classifications and reflect the effectiveness and results of operations for each responsible individual in the organization. It is important, therefore, that the authority and responsibilities of each management official be understood together with the kinds of information he requires. From this knowledge the comptroller can develop a system and classification of accounts that will produce the required information.

To facilitate prompt and accurate reporting, the cost accounts should be subsidiary to the control accounts in the general ledger. By maintenance of cost accounts as subsidiary records, cost accuracy is assured. By classification and alignment of control accounts to reflect reporting needs, reports can be submitted without delay at the end of the accounting period.

Standards.--It is an accepted principle of management, i.e., the "Principle of Comparison," that control of operations is best exercised by setting standards of performance for each responsible individual of the organization. The extent and type standards which have been adopted varies in business as in the Navy. Historical Costs, Estimated Costs, and Standard Costs are representative of the several types of systems found in use in both business and Navy today. However, there is a trend in both business and Navy towards greater use of standards determined by engineering studies and budget forecasts as opposed to historical dollar cost figures. This is attributable to the fact that standard costs are based upon engineered physical standards and budget forecasts which define more clearly what performance "should be."

experimental situation of the subject and how to handle the subject in the laboratory.

In addition, the laboratory also has a number of other facilities which are available for the use of the subject. These facilities are: a) a number of different types of apparatus, b) a number of different types of stimuli, c) a number of different types of response, d) a number of different types of recording, e) a number of different types of analysis, f) a number of different types of interpretation, g) a number of different types of presentation, h) a number of different types of evaluation, i) a number of different types of comparison, j) a number of different types of conclusion, k) a number of different types of recommendation, l) a number of different types of suggestion, m) a number of different types of instruction, n) a number of different types of explanation, o) a number of different types of demonstration, p) a number of different types of illustration, q) a number of different types of example, r) a number of different types of analogy, s) a number of different types of metaphor, t) a number of different types of simile, u) a number of different types of personification, v) a number of different types of hyperbole, w) a number of different types of understatement, x) a number of different types of irony, y) a number of different types of sarcasm, z) a number of different types of humor.

The laboratory also has a number of other facilities which are available for the use of the subject. These facilities are: a) a number of different types of apparatus, b) a number of different types of stimuli, c) a number of different types of response, d) a number of different types of recording, e) a number of different types of analysis, f) a number of different types of interpretation, g) a number of different types of presentation, h) a number of different types of evaluation, i) a number of different types of comparison, j) a number of different types of conclusion, k) a number of different types of recommendation, l) a number of different types of suggestion, m) a number of different types of instruction, n) a number of different types of explanation, o) a number of different types of demonstration, p) a number of different types of illustration, q) a number of different types of example, r) a number of different types of analogy, s) a number of different types of metaphor, t) a number of different types of simile, u) a number of different types of personification, v) a number of different types of hyperbole, w) a number of different types of understatement, x) a number of different types of irony, y) a number of different types of sarcasm, z) a number of different types of humor.

The laboratory also has a number of other facilities which are available for the use of the subject. These facilities are: a) a number of different types of apparatus, b) a number of different types of stimuli, c) a number of different types of response, d) a number of different types of recording, e) a number of different types of analysis, f) a number of different types of interpretation, g) a number of different types of presentation, h) a number of different types of evaluation, i) a number of different types of comparison, j) a number of different types of conclusion, k) a number of different types of recommendation, l) a number of different types of suggestion, m) a number of different types of instruction, n) a number of different types of explanation, o) a number of different types of demonstration, p) a number of different types of illustration, q) a number of different types of example, r) a number of different types of analogy, s) a number of different types of metaphor, t) a number of different types of simile, u) a number of different types of personification, v) a number of different types of hyperbole, w) a number of different types of understatement, x) a number of different types of irony, y) a number of different types of sarcasm, z) a number of different types of humor.

Another reason advanced is that reports are easier and more quickly prepared by letting the engineered physical standards speak for themselves. In an article entitled "Giving Budgeting Appeal to the Foreman," Mr. Woodhead advocated this latter technique.² He recommends the use of standards and reporting systems stated in terms of direct labor hours, material, supplies, hand tools, etc., terms the foreman uses and understands. However, regardless of the type standards utilized, to be effective, they must be integrated with the budgetary and cost systems and summarize in the same form in which results will appear in the accounting records. Thus, progress reporting and analysis can provide integrated control data and variances therefrom on plans, physical accomplishment, utilization of man power, material and funds, all are common measurement terms.

The Criteria for a Report.--There appears to be little agreement among businessmen, the Navy and authorities in the management field as to what constitutes a sound set of criteria for effective reporting. It is quite evident that differences in organizational purpose, operating conditions and requirements of different entities and their management officials, all necessitate a variety of reports differing in plan, arrangement and purpose. However, because of these differences and the apparent failure of many Comptrollers to recognize the need for a sound criteria in the development of report systems, the reporting function has many times fallen short of meeting real management needs. In commenting on this subject, Heckert and Willson in their book "Comptrollership" have this to say:

It is in this field, perhaps, that the Comptroller has performed less successfully than in others. A great deal of the reporting done by him has been unsatisfactory. Facts have been poorly presented. There has

²Henry Woodhead, "Giving Budgeting Appeal to the Foreman," The Controller (July 1955), p. 326.

been a tendency to submit mere tabulations or schedules. Little or no attempt has been made to summarize, to digest or to interpret the data. The information must be refined and highlighted to provide the basis for executive action. If this is not done, the loss is double. The cost of preparing data is a total waste; and the corrective action is not taken for lack of necessary information.³

As a representative sample of the differing views held on what should constitute the criteria for a good report, Heckert and Willson list fifteen rules for the preparation of reports.⁴ The "Corporate Treasurer's and Controller's Handbook" lists thirteen, repeating only five of those cited by Heckert and Willson.⁵ A "Sec Nav Note" of 19 December, 1952, lists thirty-two elements to examine in evaluating reports.⁶ From these examples it is apparent that there is little agreement as to what criteria should be employed in designing an effective report and this factor may be considered one of the basic underlying reasons why some controllers have met with little success in the reporting area. However, one of the clearest and best summaries of the requisites of an effective report is that presented by Theodore Lang in the "Cost Accountant's Handbook."⁷ In approaching the problem, Lang identifies and summarizes the criteria for preparation and presentation of reports into four areas:

³J. B. Heckert and J. D. Willson, Controllershship (New York: The Ronald Press Company, 1952), p. 387.

⁴Ibid., pp. 387-390.

⁵Mason Smith, "Internal Reports," Corporate Treasurer's and Controller's Handbook, ed. by Lillian Davies (New York: Prentice Hall, Inc., 1951), p. 806.

⁶Office of the Secretary of the Navy, "Management Reports," Sec Nav Instruction, 5220, December 19, 1952.

⁷Theodore Lang, Cost Accountant's Handbook (New York: The Ronald Press Company, 1944), pp. 6-9.

- (1). Economy of time and effort, i.e., on the part of the executive.
- (2). Physical make up, i.e., the question of format.
- (3). Timeliness of presentation.
- (4). Content.

On the subject of economy and effort, Lang points out that: "An important consideration is that reports be constructed in such a manner, that the executive may keep himself informed concerning operations and costs with a minimum of time and effort."⁸ In achieving this objective the guiding principle is "one of working toward the details rather than through them."⁹ This means that the executive should be presented first with a summary which gives a quick look at conditions. These summaries are many times termed "flash reports" and although widely used in industry, have only recently received much attention in the Navy. The "Principle of Exception" underlies the construction of the summary, thus, items are eliminated which are in line with standards and plans.

In discussing the physical make-up of the report, Lang states that "a report well prepared makes the task of the reader easier and creates a psychological reaction favorable to the author of the report."¹⁰ He cites six rules of physical make-up which should be observed:

- (1). Title should be fully descriptive of the nature of the report.
- (2). Period covered should be clearly indicated.
- (3). Form should be simple and adjusted to the understanding of the persons for whom intended. Charts should not be employed unless the persons for whom the report is intended fully understand their use.
- (4). Column headings and legends should be clear and concise.
- (5). Whenever possible, reports should be made visual; i.e., be prepared in the form of charts, graphs, diagrams etc.
- (6). Data should be arranged in a manner which best facilitates reading and a quick grasp of their significance.
- (7). Present the summary findings first. Details supporting the summary should be available.¹¹

⁸Ibid., p. 7.

⁹Ibid., p. 6.

¹⁰Ibid., p. 7.

¹¹Ibid., p. 7.

In examining the subject of report timeliness, it has already been seen that timeliness is one of the most important ingredients for successful reporting and control. Operating officials need information that makes correction possible while the work is being performed. In considering the time element of a report, Lang recommends these rules:

- (1). Whether reports are on a monthly, weekly or daily basis, they must cover a period adequate to the needs of the person receiving.
- (2). Reports must be accurate, prompt and up-to-date.¹²

In considering the elements which should be considered in determining proper report content, the Principles of "Uniformity," "Comparison," and "Exception" are all apparent in the rules set forth by Lang:

- (1). A report should confine itself to significant facts. For example, labor is the largest element of controllable cost in coal mining; whereas in the flour milling or brewing industries, material usage and product quality must be stressed.
- (2). Reports should be in form of comparisons.
- (3). Reports should be comparable with preceeding periods.
- (4). Reports should indicate variations in costs and operating results.
- (5). Reports should indicate areas where efforts should be put forth to effect improvement in operations and reduction in costs.
- (6). Reports should be presented in such a way that responsibility for results indicated therein can be placed immediately and without question.¹³

The Classification of Reports.--To properly communicate facts to management, there must be a clear understanding of the purposes, applications and limitations of the various type reports. To achieve this end an arrangement or classification of all reports by purpose aids understanding and facilitates the development and maintenance of a comprehensive and well balanced report structure. Report classification also points up possibilities of refinement and improvement. It further points up duplications, weaknesses and underdeveloped areas in the report structure and facilitates analysis inter-

¹²Ibid., p. 8.

¹³Ibid., p. 9.

pretation and maintenance of control over the reporting system.

While reports may be classified in a variety of ways there are certain distinctions, either in purpose or in application which should be recognized. In examining the principles of control and reporting, it was seen that all figures and reports issued for purposes of control must be in terms of the organization structure. In classifying reports, normally three levels of management are recognized. In business there are the Minor Executives, the Intermediate and the General Executives.¹⁴ In the Navy they are the Shop or Division Supervisor, the Department Head and the Commanding Officer. Reports for the General Executives and the Commanding Officer reflect overall operations. They are of necessity broadest in scope and as far as possible, summarized and condensed. Reports for intermediate executives and department heads reflect their respective spheres of authority and responsibility. Reports for minor executives or shop or division supervisor are detailed in character and emphasize the details of their every day operations.

In classifying reports for the several levels of management, distinction should be made between Operating and Financial reports. Operating reports concern themselves with the results of overall operations or with the operating results of a segment of the entity. Financial Reports deal with budgetary status, costs of operations and the financial condition or performance of the entity and its segments.

Operating Reports are better understood when classified into Control Reports and Information Reports.¹⁵ Control Reports are the reports which provide management direct operating control over the entity. Information Reports

¹⁴Ibid., p. 4.

¹⁵Anderson, op. cit., p. 235.

cover any phase of the entity and are normally employed by management for planning and policy determination.

Control Reports normally separate into sub-classifications Current Control Reports and Summary Reports. In the former classification are found overall workload reports measuring plans against actual operating performance for General Executive or the Commanding Officer. Another type of Current Control Report is that furnished the department head or the shop or division supervisor; or, in business, the intermediate or minor executive. Here again the principal characteristic of this type report is that of recording deviations from planned performance in order that prompt corrective action may be taken by operating management.

Summary Reports, the second sub-classification of Control Reports, usually summarize deviations from plans over a period of time as a check on Current Control Reports and the operating effectiveness of responsible officials. This type report is normally designed for the first two levels of management and presents a period analysis and summary of deviations from standards or plans and the effect of these deviations on budgeted rates.

Information Reports, developed for management planning and policy determination constitute the second major classification of Operating Reports and cover a variety of subjects and operations. However, they are usually classified as to the "method of approach" or by the "area" or "subject" covered. In this first classification, reports may be grouped as to whether they are trend or analytical. Trend reports are normally analytical comparisons of the same function or activity over a period of months or years. Analytical reports also provide horizontal or cross sections comparisons of performance over the period. The comparisons may be against standards, system or industry

performance or past performance over a period of months or years. The second classification, by Area or Subject or Activity, is more comprehensive in scope. Under Area Reports are grouped all reports and analysis treating with the activities under the supervision of a single responsible official. A secondary classification of Area Reports encompasses all reports which reflect combined functional type operating results that are not controlled by a single official.

As we have seen, Financial Reports comprise the second major classification in the report structure. In a business, the balance sheet is the basic financial statement, and all other financial reports are supplementary to or derived from it. In the Navy, the basic financial statement is the Budgetary Status Report, although balance sheets and related statements are periodically prepared for overall Navy and are also employed in connection with Navy business-type operations. However, in both business and Navy alike, financial reports are best understood when grouped into four basic classifications: Static Reports, Dynamic Reports, Effectiveness Reports and Status Trend Reports.¹⁶

The Static Report classification groups those reports which reflect the financial position or strength as of a given date. In the Navy, such reports reflect the status of commitments, obligations and expenditures as of a given date. This type report provides a bench mark for management evaluation of funds utilization and the activities' current financial position and status. As we have seen, the counterpart of this type report in business is the balance sheet, usually augmented by a Statement of Source and Application of Funds.

¹⁶Anderson, op. cit., p. 289.

The grouping of all Dynamic Reports comprises the second classification of Financial Reports. This type report provides financial control through measurement, analysis, and interpretation of financial performance against budget plans. Since financial reports and operating reports must be inter-related for effective management control, the majority of financial reports are of this type. Dynamic Reports relate directly to budgetary plans and have their counterparts in the various type current Control Reports earlier described.

Effectiveness Reports make up the third classification of Financial Reports. This type report relates, usually in terms of ratios, the effectiveness of funds utilization to value received as the basis for management planning and policy determination in such areas as program effectiveness, inventory investment, manpower, equipment and other resources utilization.

The fourth and last classification of Financial Reports is the Status Trend Report. This classification groups those reports which measure financial trends of functions, activities or groups of activities over a period of months or years. It provides management a financial measure of long term progress and trends.

Control Over Reports.--In business and in Navy alike, reports must be controlled if the report structure is to be maintained in balance with the needs of the various levels of management. In dynamic organizations, a report system tends to pyramid. Unless some form of control is developed and maintained, excessive numbers of reports overlap, duplication and the reporting of useless information characterize the system.

To establish an effective system of reports control, authority over this function is usually centered, in business and Navy alike, in the comptroller's

organization. Although methods and techniques of control vary from organization to organization, they usually embrace the following elements:

First, a perpetual inventory of all reports should be established and maintained. Usually the inventory record is arranged by report classification, cross referenced to an alphabetical index for ease in use.

Second, periodic and regular reviews should be made with the appropriate operating official to determine if the need for the report still exists. These reviews should also determine whether the report is in proper form and is meeting a real management need. This review may be conducted as a part of a regular management survey or internal audit or it may be conducted by the individual charged with the responsibility for reports control.

Third, the reports control representative should periodically and regularly reconcile and cross check each report and report classification as a basis for consolidation, elimination or discovery of deficient reporting areas.

Finally, to maintain the integrity of the control system, requests for new reports should be reviewed by the reports control representative. This review should consider the purpose and need for the requested information; whether the data is already available in suitable report form; the period over which the information will be required; where and how the required data will be prepared; the format, content and manner of presentation, or other pertinent data. Newly approved reports should be introduced into the perpetual inventory control records. Like every other element of the organization, reports must be controlled if the system is to be effective.

CHAPTER III

ANALYSIS AND INTERPRETATION

The Objective.--Among the primary responsibilities of comptrollership are the functions of summarization and evaluation of financial plans and the measurement and analysis of program performance as the plans operate. While a sound reporting system provides the basic means for exercising these responsibilities, reports must, in nearly all cases, be analyzed and interpreted if they are to be effective for management planning and control purposes. In the words of Frank Wallace, "reports essentially are communications to other executives; analysis and interpretation completes the communication and insures understanding."¹

Analysis Defined.--Webster's Dictionary defines analysis as: "The separation of anything into constituent parts or elements; also, an examination of anything to distinguish its component parts, separately, or in their relation to the whole."² Analysis involves, then, the breaking down of objectives, plans and programs into identifiable areas of performance. It includes the comparison of actual performance in each of these areas against forecasts, plans, budgets and standards for management control purposes. It also measures the status and trends of these same identifiable areas for

¹Frank Wallace, "Analysis and Interpretation of Business Results," Corporate Treasurer's and Controller's Handbook, ed. by Lillian Davis, (New York: Prentice-Hall Inc., 1950), p. 840.

²A. Merriam Webster, Webster's Collegiate Dictionary (Springfield, Massachusetts: G. and C. Merriam Co., 1944), p. 38.

management planning and policy determination purposes. In all of these comparisons, the analysis process must recognize out-of-line conditions or trends, identify causes and interpret and present the significant facts for management action.

The Program for Analysis.--Objectives and Plans Analysis.--The test of the effectiveness of any organization is the extent to which it is achieving its goals and objectives. For the analyst to interpret and report the degree of success achieved, management must clearly define the objectives of the organization and develop the plans and programs necessary for their attainment.

In a typical industrial enterprise, the objectives of the entity are usually concerned with the ultimate size of the business, the profit goals, and the nature of the products to be produced.³ On the basis of the goals established, long range forecasts and plans are developed setting forth capital facilities, working capital and other requirements necessary for their achievement. From forecasts of the general level of economic activity, the price level of the industry of which the entity is a part and other conditions that will limit the general activity of the business, annual operating forecasts and plans of action are prepared and translated into budgets. The system of financial planning, to be of maximum usefulness, should culminate in a forecast of sales and profits, a forecast of working capital requirements and cash resources and capital-expenditure budgets, together with statements which show the planned operating performance and balance sheet condition. Thus, the first step in the analysis process is to test and evaluate these relationships.

³H. H. Scaff, "Financial Planning--Long Term Forecasting," Corporate Treasurer's and Controller's Handbook, ed. by Lillian Davies, (New York: Prentice-Hall Inc., 1950), p. 54.

Not one of the various parts of a business operation can remain out of phase with the others very long if the enterprise is to function effectively. Production must be scheduled to meet sales demand, the amount of materials purchased must reflect production needs, in fact, any limitation of the activities in one part of the organization will have the ultimate effect of curtailing other processes. Hence, the analyst must assure that scheduled plans of action and their related budgets are consistent with each other and with the program as a whole and that the statements of planned operating performance and financial condition adequately reflect the objectives and plans of management.

As the plan operates, the analyst must also measure progress against plan, determine and evaluate any significant variations and provide management with the facts necessary for decision and corrective action. The analysis should point up for management the significant problems that have occurred or are in process of developing and the projected import of these developments on other parts of the business. The analysis should also focus attention on the causes and suggest remedial action necessary to bring operations in line with plans.

In the Navy the financial planning process is much the same. The objectives and long range plans of the Navy are set forth in the "Basic Navy Mobilization Plan." Short range objectives and operating plans for the Navy are published annually by the Chief of Naval Operations in the "Basic Naval Establishment Plan."⁴ This plan sets forth annually the planned level of operations for the Navy, its strength, deployment, ship overhauls planned,

⁴Office of the Chief of Naval Operations, "Navy Planning System," OPNAV Instruction 3030.1, December 23, 1950.

...the fact that the author has a full and complete knowledge of the subject, and that his treatment is not only accurate but also very interesting. The book is written in a clear and concise style, and the author's knowledge of the subject is evident throughout. The book is a valuable addition to the literature on the subject, and it is highly recommended to all who are interested in the subject.

...the fact that the author has a full and complete knowledge of the subject, and that his treatment is not only accurate but also very interesting. The book is written in a clear and concise style, and the author's knowledge of the subject is evident throughout. The book is a valuable addition to the literature on the subject, and it is highly recommended to all who are interested in the subject.

...the fact that the author has a full and complete knowledge of the subject, and that his treatment is not only accurate but also very interesting. The book is written in a clear and concise style, and the author's knowledge of the subject is evident throughout. The book is a valuable addition to the literature on the subject, and it is highly recommended to all who are interested in the subject.

...the fact that the author has a full and complete knowledge of the subject, and that his treatment is not only accurate but also very interesting. The book is written in a clear and concise style, and the author's knowledge of the subject is evident throughout. The book is a valuable addition to the literature on the subject, and it is highly recommended to all who are interested in the subject.

number of hours to be steamed, aircraft hours to be flown, aircraft overhauls, manpower levels, and other pertinent operating data. These factors become the basis for the annual operating plans and budgets of the Management Bureaus, Offices and other elements of the Navy. In translating these planning factors into operating programs and budgets, management bureaus and offices plan each year not only what will be required to support the Navy during that year, but also those additions necessary to meet long range mobilization planning needs. As in industry, the role of the analyst, at all levels of review, is that of relating budgetary programs to short and long range plans and objectives and testing and confirming these relationships during the budget formulation process and as the plan operates.

Planning Factor Analysis.--Planning factors, or the external factors which govern the general activity of the organization, provide the basis for program planning and budgetary development and constitute the second area of the analysis program. In the Navy, for Management Bureaus and Offices, they are the number of ships, aircraft, personnel, etc., expressed in the annual operating plan. In industry, they are the factors used in developing economic, commodity and entity sales forecasts. Based upon statistical correlations or either established techniques, known relationships are established between planning factors and the operating program of the entity. For example, the past volume of production of an industry can correlate directly with the Gross National Product.⁵ When such a relationship exists, the future volume of production in this industry may be estimated by extending the trend of past relationships of that industry's production to the Gross National Product. Representative of the effectiveness of this technique is the experience of one

⁵Ibid., p. 65.

firm which has been able to forecast its physical sales volume within a margin of error of less than two percent over a period of ten years.⁶ In the Navy similar correlation techniques are employed. For example, the per capita consumption of provisions correlates directly to the manpower levels of the Navy. Thus, given any future strength of the Navy, the quantity of provisions required and the workload of the Navy Supply System in procuring, storing and distributing provisions can be determined. Similar correlations exist for other categories of material supply. However, as planning factors and programs relationships are subject to change, this second step in the analysis program is that of testing and confirming program and planning factor relationships during the planning process and again as the programs operate.

Program Analysis.--As has been seen, a budget is a plan of operations for a future period stated in financial terms. The preparation of the overall operating plan and supporting budget is based on the premise that the transactions and operations within an organization are interrelated--that is, if some part of the plan can be taken as a starting point, the rest of it may be established either directly or indirectly with a fair degree of certainty.⁷ In an industrial enterprise if the physical volume of sales can be forecast with reasonable accuracy, the sales budgets and the production and inventory budgets necessary to sustain the planned sales volume follow. From the production budget, the direct materials, labor and machine hours budgets are scheduled on the basis of pre-determined standards. Direct-indirect labor budgets, utilities budgets and indirect supplies budgets relate indirectly but are also planned on the basis of the production volume forecast. Unlike

⁶W. J. Vatter, Managerial Accounting (New York: Prentice-Hall Inc., 1950), p. 129.

⁷Ibid., p. 112.

the manufacturing departments, the workload of the staff and service departments do not vary in line with changes in production workloads. Thus, it is necessary to estimate, on an individual departmental basis, the workload each staff or service department will be called upon to carry. In a similar manner, selling expense, advertising expense, administrative expense and other operating and non-operating income and expense budgets are developed. From these budgets are developed summary schedules of operating charges and operating income and the related plans for personnel staffing and other resources necessary to carry on the planned operations. Combined, these schedules form the planned Operating Statement for the period. Similarly, cash collections and disbursements combine to form the cash budget. Included in the planned cash disbursements budget are the sums necessary to support the capital expenditures program. These schedules, together with other data, combine to set up the planned balance sheet for the end of the budget period. Thus, as has been earlier seen, the overall budget is a combination of all of these programs and provides a complete set of management plans for the period expressed in terms of the operations to be performed and the goals to be attained. Thus, the next step in the analysis program is that of analyzing and comparing the various departmental programs and budgets in terms of their component parts. Analysis should confirm that program scheduling is consistent with planned deadlines and the policies of the enterprise. Further, the analyst must also establish that standards and workload factors employed in developing direct labor, direct material, machine utilization, and other resources requirements are sound and that seasonal, price, wage rate and other trends as forecast are properly reflected in departmental schedules and budgets. Finally, the departmental plans as "fitted" and summarized into the Profit and Loss Statement and

Balance Sheet must be analyzed as to the expected profit showing and the effects of the budgeted operations upon asset and liability accounts and the capital structure.

In the Navy, budget formulation and program analysis is based upon a set of budgetary principles which are quite similar to those employed by industry. Here again, a budget is a plan of operations for a future period stated in financial terms. Like industry, the preparation of an operating plan and supporting budget is based upon the premise that if some part of the plan can be taken as a starting point, the rest of it may be established either directly or indirectly. As an example, in the Navy Supply System, the number of ships, planes, men, etc. set forth in overall Navy Operating Plans determines the workload for each supply distribution system, e.g., provisions supply system, ships parts supply system, aviation supply system etc. The summation of the workloads of the several systems, expressed in common workload measurement terms, establishes the overall workload of the Navy Supply Distribution System for the period ahead. This workload is then related to the various functions to be performed by the supply system in carrying out the planned workload i.e., storage, packing, traffic, stock control, inventory, issue control, etc. These functions correspond to the organization elements of the supply activities performing the work. Based upon a system of work measurement reporting, the projected functional or departmental workloads are translated into the direct and indirect labor requirements for the period ahead. Material and overhead requirements are computed on the basis of past experience ratios. As the account structure is designed to accumulate costs for the same functional and sub-functional areas covered by work measurement, unit costs are developed from the cost and work measurement reporting systems.

The budget formulation process thus becomes one of formula computation i.e. the unit cost projected times the budget year workload forecast equals the planned budget year total cost.⁸ Thus, as in industry, the next step in the analysis program is that of analyzing and comparing the various functional programs and budgets in terms of their component parts, both during the formulation process and again as the program operates.

Cost Analysis.--In formulating production department budgets in a typical industrial enterprise, estimates are normally based upon standard costs which should reflect the best judgment of production managers as to what costs "should be" if the plant were operated with a high degree of efficiency. Before a detailed analysis can be made, it is necessary to distinguish between the two groups of standards; i.e. price standards and quantity standards. For each element of cost, whether direct labor, direct material or overhead, the variance between actual and standard is explained by either quantity or price differences or both. Under a system of standard costs, engineering specifications are used as the basis for establishing quantity standards for material and time standards for labor, while budget forecasts are used to determine material price standards, labor rate standards and overhead standards. The estimated production for the budget period is also important as it is the factor used in determining the standard overhead rate for the period. In formulating production department budgets, standards are generally developed to show estimates for each element of cost, for each production center, for each operation and in some enterprises, for each machine.⁹ To facilitate the

⁸Statement by Commander W. B. Durant Jr. (SC) USN, Project Manager for Supply, Office of the Comptroller, Bureau of Supplies and Accounts, February 14, 1956.

⁹J. G. Blocker, Essentials of Cost Accounting (New York: McGraw-Hill Book Company, Inc., 1950), p. 278.

reporting and analysis of variances, the account structure is designed to record variances between actual and standard performance by type, i.e., by material price variance, material quantity variance, labor wage variance, labor time variance, and overhead expense budget, idle capacity and production efficiency variances.¹⁰

As the plan operates and production goes forward, variances between standard costs and actual costs, by type, are computed and reported for analysis and corrective action. With variances reported in this fashion, the interest of the analyst can be centered on determination of cause and the necessary corrective measures which should be taken by operating management.

Causes of direct material, direct labor and overhead variances are varied. However, the "Cost Accountant's Handbook" provides an excellent resume of the factors which the analyst must examine in establishing causes of operating and cost variances:

A. Causes of Direct Material Variances:

1. Price Variances Sources

- a. Changes in Market price.
- b. Improper purchasing policies.
 - (1) Changes in purchasing policies.
 - (2) Wrong quantity.
 - (3) Wrong quality or grade.
- c. Errors in recording.

2. Usage Variance Sources

- a. Changes in design of product, machinery, or tools.
- b. Changes in methods of processing or fabricating.
- c. Excess spoilage or waste in production.
- d. Losses in storage through spoilage, theft, waste.
- e. Damage during handling.
- f. Too rigid inspection.
- g. Errors in accounting charges.

B. Causes of Direct Labor Variances:

¹⁰Ibid., p. 298.

1. Rate Variance Sources
 - a. Wage rate changes.
 - b. Change of payment plan.
 - c. Change in grade of labor used.
 - d. Clerical errors.
2. Time or Efficiency Variances
 - a. Selection of workers.
 - b. Training of workers.
 - c. Frequency of change-overs.
 - d. Labor turnover.
 - e. Incentive wage payment plan.
 - f. Working conditions.
 - g. Working hours.
 - h. Honesty among workers.
 - i. Selection of machines and tools.
 - j. Changes in design of product.
 - k. Changes in machinery, tools, or methods of production.
 - l. Adequate accounting or production records.

C. Causes of Overhead Variances:

1. Spending Source Variances
 - a. Using wrong grade of materials.
 - b. Using wrong grade of labor.
 - c. Failure to get most favorable terms in buying.
 - d. Changes in market price.
2. Efficiency Variance Sources
 - a. Waste of material.
 - b. Inefficient labor performance.
 - c. Failure to curtail usage of materials and services to correspond with out-put level.
3. Utilization Variance Sources
 - a. Controllable Causes
 - (1) Employees waiting for work.
 - (2) Avoidable machine breakdown.
 - (3) Lack of operators.
 - (4) Lack of tools.
 - (5) Lack of instruction.
 - b. Non-controllable causes
 - (1) Decrease in customer demand.
 - (2) Calendar fluctuation.
 - (3) Excess plant capacity.¹¹

In the Navy, standard cost systems have not as yet been widely adopted for use by Navy industrial-type and commercial-type activities, although during

¹¹Lang, op. cit., pp. 17-35.

recent years a growing interest in this type control has been evidenced.¹² Thus, except for a few installations where standard cost systems are in process of development, standards for performance evaluation have been developed largely through use of historical costs or work measurement systems. Under a Navy work measurement system such as that employed by the Bureau of Supplies and Accounts, work performance is measured on the basis of group effort. At functional and sub-functional levels, units of measure are selected which best describe the workloads performed. Actual work units completed are tabulated statistically and reported by the various organizational units as of the end of each month. Productive and non-productive man hours and functional costs are assembled from job order reporting systems which are integrated with work measurement functional and sub-functional areas. Together, productive man hours and work units completed, provide the functional production rate of the organization unit. By statistical evaluation of functional production rates over a period of time, performance standards are developed. On the basis of standards and unit costs, operating plans and budgets are developed, against which operating performance can be evaluated. Here, as in industry, variances between standards and actual performance are computed and reported for analysis action. In this area, the Navy analyst finds himself confronted by essentially the same causes of operating and cost variances as his counterpart in industry. It is also in this area that the analyst makes his greatest contribution to cost control.

Special Analytical Studies.--Another primary responsibility of comptrollership lies in the area of special analytical studies. In commenting on

¹²Martin E. Finney, "Standard Cost Accounting Concepts and Principles," Navy Comptroller Review, Vol. III No. 4, April 1956, p. 6.

this function, Frank Wallace points out:

That the comptrollers' most creative work is in special studies. Here he has opportunity to make substantial contribution to company policies and to influence his company's future. He is in the unique position of observer of all company activities and he has the vital statistics under his control.¹³

Recent years have seen increased recognition of this responsibility and the addition of new analytical skills and techniques to the Comptrollers' Staff. In the area of probability control, the statistician has introduced his methods and techniques of control to service, products and performance, particularly in the area of quantity and quality control. In the area of operating forecasts, the economist has applied his knowledge of national economic conditions. Finally, and one of the most recent additions, is the mathematician and the application of his skills in the areas of mathematical programming and "operations research."

Interpretation.--However effective the reporting systems and the work of the analyst may be, unless the significant facts concerning operating performance and financial conditions are presented to management promptly and in a usable form, these efforts are negated. While there are many ways of presenting an analysis and interpretation to the level of management concerned, the technique should be tailored to the nature and complexity of the material to be presented, the interest of the executive concerned and the action needed. The methods employed in both Navy and Industry, include written reports, verbal presentations and combinations of written and verbal presentations.

Written reports to management vary from brief analytical tables and charts to detailed and complete narratives. In the latter, most levels of management will rarely take the time to digest a detailed and lengthy document.

¹³Wallace, op. cit., p. 841.

While the short report is preferred by most, it may omit necessary detail. However, the proper balance in report length must depend upon the complexity of the subject, the desires of the individual concerned and the manner of presentation. The written report has the advantage of convenience in that it may be read at the convenience of the user although there is the danger that the reader may not fully comprehend sets of figures or words chosen to explain a given situation. The written report has its greatest effect when it is preceeded, accompanied, or followed by a verbal presentation which gives force and meaning to the important points.

Among the most commonly used types of written reports are current control and dynamic financial reports, analytical reviews of progress over periods of time, narrative reports covering an area of performance or responsibility and informational or effectiveness reports providing broad coverage of operating and financial trends. (Refer page 13 for complete classification).

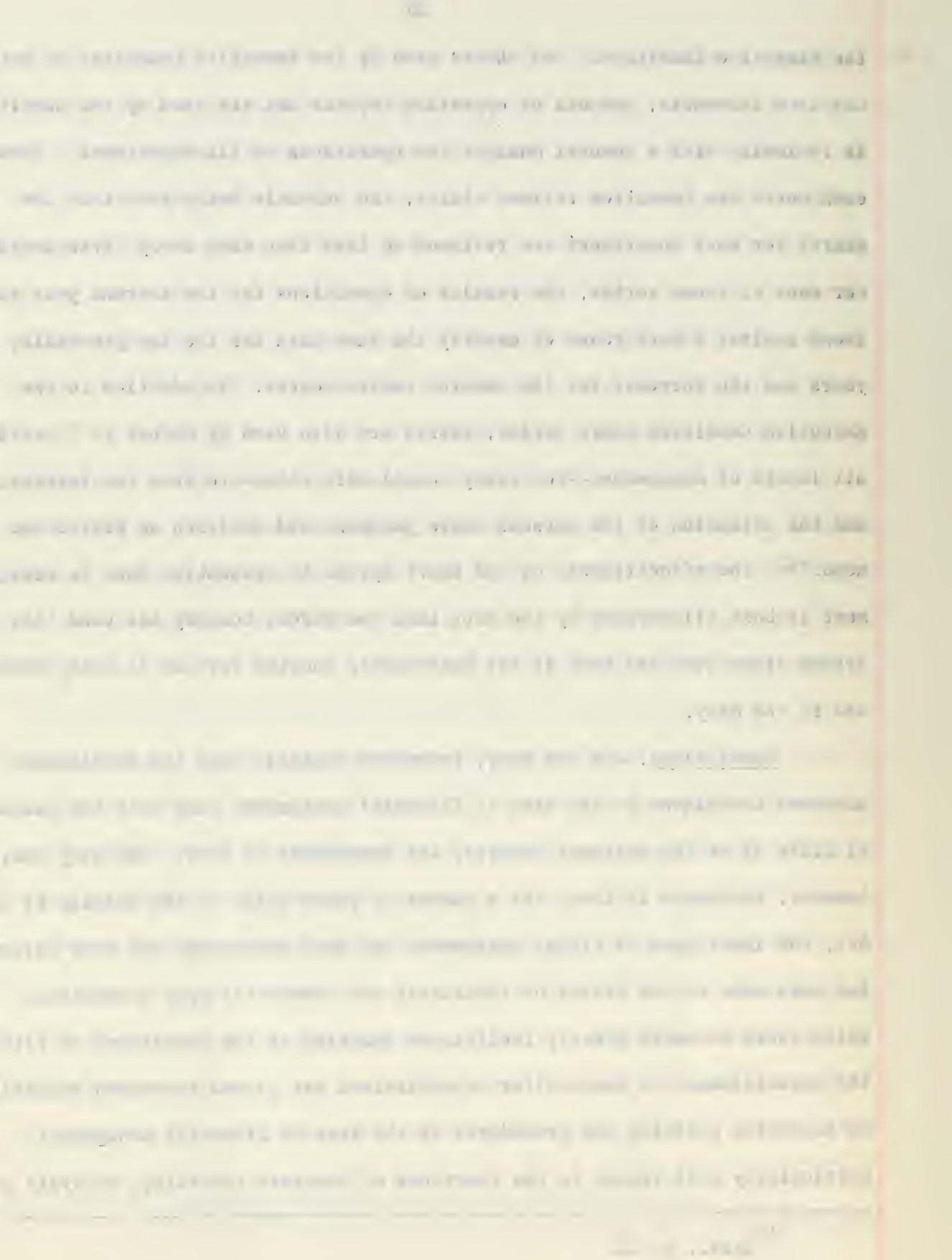
Verbal presentations offer greater flexibility, and meaning than written reports as individual reactions can be studied and the presentation adjusted in length or emphasis. Clarification can also be provided when needed. The greatest disadvantage of a verbal presentation is the inability of "people" to understand and retain all of the facts presented. To facilitate understanding, verbal presentations are usually augmented by charts, graphs, illustrations, projections on a screen or other visual aids. An example of this type presentation is the "Chart System" employed by the E. I. DuPont de Nemours Co.¹⁴ This system utilizes charts and tabulations for presenting data pertinent to the performance of each operating investment of the Company to

¹⁴T. E. Davis, "How the DuPont Organization Appraises its Performance," American Management Association, Financial Series, No. 94, 1950.

the Executive Committee. The charts used by the Executive Committee do not displace forecasts, budgets or operating reports but are used by the Committee in reviewing with a general manager the operations of his department. Once each month the Committee reviews charts, the schedule being such that the charts for each department are reviewed no less than once every three months. For each of these series, the results of operations for the current year are shown against a background of exactly the same data for the ten preceeding years and the forecast for the ensuing twelve months. In addition to the Executive Committee Chart Series, charts are also used by DuPont at "practically all levels of management--for every conceivable thing--to draw the interest and the attention of the persons whose judgment and decision we desire and need."¹⁵ The effectiveness of the chart system in presenting data to management is best illustrated by the fact that the DuPont Company has used this system since 1919 and that it has been widely adopted for use in both industry and in the Navy.

Conclusions.--In the Navy, increased emphasis upon the development of advanced techniques in the area of financial management came with the passage of Title IV of the National Security Act Amendments of 1949. The Navy was, however, fortunate in that, for a number of years prior to the passage of this Act, the importance of fiscal management had been recognized and many advances had been made in the fields of industrial and commercial type accounting. While these advances greatly facilitated adoption of the provisions of Title IV, the establishment of comptroller organizations has placed increased emphasis on improving policies and procedures in the area of financial management, particularly with regard to the functions of progress reporting, analysis and

¹⁵ Ibid., p. 22.



interpretation.

As a result of this study, there are certain basic points which stand out. First: Significant progress has been made by the Navy to date in the areas of reporting, analysis and interpretation. This progress can be attributed to a large degree to the fact that the principles and methods adopted, closely parallel sound and proven business practice. Second: Reporting, analysis and interpretation should never be regarded as a magic means of curing all weaknesses in the management process. Properly implemented and employed, these functions can, however, provide the most effective single means of securing and maintaining control over all levels of the organization. Finally, refinement of reporting, analysis and interpretation techniques must be a continuing process and these functions will, because of their nature, always remain one of the foremost responsibilities of the comptroller.

BIBLIOGRAPHY

Books

- Anderson, David R. Practical Controllershship. Chicago: Richard D. Irwin Inc., 1949.
- Blocker, J. G. Essentials of Cost Accounting. New York: McGraw-Hill Book Company Inc., 1950.
- Carroll, Phil. How to Control Production Costs. New York: Funk and Wagnalls Company, 1950.
- Davies, Lillian (ed.). Corporate Treasurer's and Controller's Handbook. New York: Prentice-Hall Inc., 1951.
- Heckert, J. B. and Willson, J. D. Controllershship. New York: The Ronald Press Company, 1952.
- Holden, P. E., Fish, L. S. and Smith, H. L. Top Management Organization and Control. New York: McGraw-Hill Book Company Inc., 1951.
- Lamperti, F. A. and Thurston, J. B. Internal Auditing for Management. New York: Prentice-Hall Inc., 1953.
- Lang, Theodore. Cost Accountants' Handbook. New York: The Ronald Press Company, 1944.
- MacDonald, J. H. Practical Budget Proceedure. New York: Prentice-Hall Inc., 1939.
- Matz, A., Curry, O. J. and Frank, G. W. Cost Accounting. Cincinnati: South-Western Publishing Company, 1952.
- Mueller, R. K. Effective Management Through Probability Controls. New York: Funk and Wagnalls Company, 1950.
- Taylor, Frederick W. Shop Management. New York and London: Harper and Brothers Publishers, 1911.
- Urwick, L. The Elements of Administration. New York and London: Harper and Brothers Publishers, 1943.
- Vatter, W. J. Managerial Accounting. New York: Prentice-Hall Inc., 1950.

CONTENTS

PAGE

Introduction	1
Chapter I. The History of the United States	10
Chapter II. The Constitution of the United States	25
Chapter III. The Federal Government	40
Chapter IV. The State Governments	55
Chapter V. The Local Governments	70
Chapter VI. The Judiciary	85
Chapter VII. The Executive	100
Chapter VIII. The Legislative	115
Chapter IX. The Military	130
Chapter X. The Naval	145
Chapter XI. The Air Force	160
Chapter XII. The Space Program	175
Chapter XIII. The Environmental Movement	190
Chapter XIV. The Women's Movement	205
Chapter XV. The Gay Rights Movement	220
Chapter XVI. The Disability Rights Movement	235
Chapter XVII. The Elderly Rights Movement	250
Chapter XVIII. The Youth Rights Movement	265
Chapter XIX. The Animal Rights Movement	280
Chapter XX. The Human Rights Movement	295
Chapter XXI. The Global Warming Movement	310
Chapter XXII. The Nuclear Energy Movement	325
Chapter XXIII. The Renewable Energy Movement	340
Chapter XXIV. The Organic Food Movement	355
Chapter XXV. The Fair Trade Movement	370
Chapter XXVI. The Slow Food Movement	385
Chapter XXVII. The Local Food Movement	400
Chapter XXVIII. The Community Supported Agriculture Movement	415
Chapter XXIX. The Urban Farming Movement	430
Chapter XXX. The Vertical Farming Movement	445
Chapter XXXI. The Aquaponics Movement	460
Chapter XXXII. The Hydroponics Movement	475
Chapter XXXIII. The Aeroponics Movement	490
Chapter XXXIV. The Nanotechnology Movement	505
Chapter XXXV. The Biotechnology Movement	520
Chapter XXXVI. The Space Exploration Movement	535
Chapter XXXVII. The Mars Colonization Movement	550
Chapter XXXVIII. The Moon Colonization Movement	565
Chapter XXXIX. The Asteroid Mining Movement	580
Chapter XL. The Deep Sea Mining Movement	595
Chapter XLI. The Arctic Mining Movement	610
Chapter XLII. The Antarctic Mining Movement	625
Chapter XLIII. The Outer Space Mining Movement	640
Chapter XLIV. The Space Tourism Movement	655
Chapter XLV. The Space Colonization Movement	670
Chapter XLVI. The Space Exploration Movement	685
Chapter XLVII. The Space Exploration Movement	700
Chapter XLVIII. The Space Exploration Movement	715
Chapter XLIX. The Space Exploration Movement	730
Chapter L. The Space Exploration Movement	745

Public Documents

Office of the Assistant Secretary of the Navy for Air. Manual for Integrated Work Measurement Program. Nav Exos publication 816, 15 August, 1950.

Office of the Chief of Naval Operations. "Navy Planning System," Op Nav Instruction 3030.1. 23 December, 1950.

Office of the Navy Comptroller. "Instructions for Preparation of Budget Estimates," Nav Comp Instruction 7110.6. 21 August, 1953.

Office of the Secretary. "Establishment of Comptroller Organizations in Bureaus, Offices, Headquarters and Field Activities of the Navy and Marine Corps," Sec Nav Instruction 5400.4. 18 November, 1953.

Department of the Navy, Office of the Secretary. "Management Reports," Sec Nav Instruction 5220. 19 November, 1952.

Articles

Davis, T. E. "How the DuPont Organization Appraises its Performance," American Management Association, Financial Series, No. 94, 1950.

Ellis, G. C. "Financial Controls and Their Significance to Management," The Controller, (October, 1945).

Finney, Martin E. "Standard Cost Accounting Concepts and Principles," Navy Comptroller Review, Vol. III, No. 4, (April, 1956).

Lindseth, E. L. "An Accounting Yardstick," The Controller, (September, 1951).

Sutherland, Malcolm S. "Internal Reports to Management," The Controller, (April, 1955).

Woodhead, Henry. "Giving Budgeting Appeal to the Foreman," The Controller, (July, 1955).

genHF 5550.G3y1956 v.5
Navy graduate comptrollership program te



3 2768 001 98682 1
DUDLEY KNOX LIBRARY